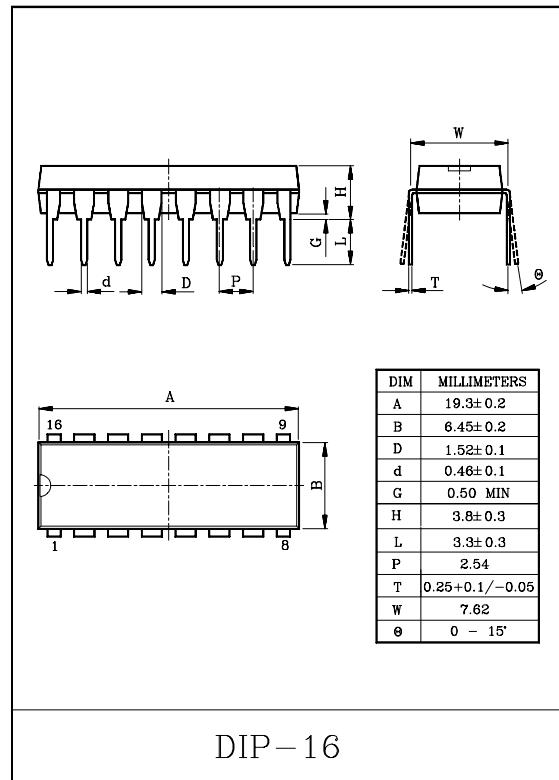


AM/FM IF SYSTEM IC

The KIA6040P is AM/FM IF system IC designed for portable use. As compared with conventional IC, this IC is greatly improved in external parts counts and electrical characteristics, especially tweet and overload distortion.

FEATURES:

- Low Supply Current, AM:7mA, FM : 10mA(Typ.).
- Few External Parts.
- Excellent Tweet.
- Low Overload Distortion.
- Tuning Indicator LED Driving Capability.
: $I_{LAMP}=10mA$ (Typ.)
- Built-in AM/FM Mode Switch.
- Common Output for AM/FM.
- Operating Supply Voltage Range : $V_{CC(\text{opr})}=3\sim 8V$ ($T_a=25^\circ\text{C}$).

MAXIMUM RATINGS ($T_a=25^\circ\text{C}$)

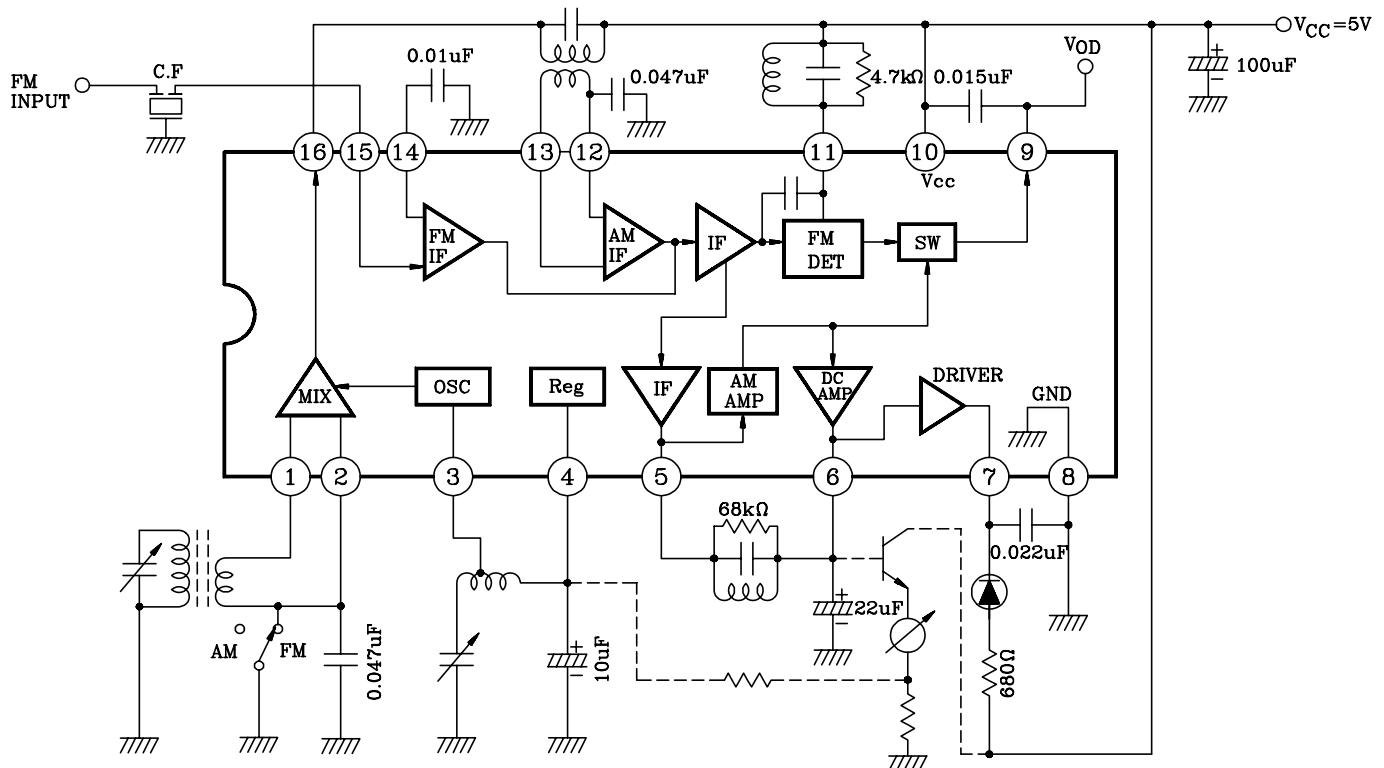
CHARACTERISTIC	SYMBOL	RATING	UNIT
Supply Voltage	V_{CC}	8	V
Lamp Current	I_{LAMP}	10	mA
Power Dissipation (Note)	P_D	750	mW
Operating Temperature	T_{opr}	-25~75	°C
Storage Temperature	T_{stg}	-55~150	°C

Note : Derated above $T_a=25^\circ\text{C}$ in the Proportion of 6mW/°C for KIA6040P.

DIP-16

KIA6040P

BLOCK DIAGRAM



Note : The dot line denotes a tuning meter application.

ELECTRICAL CHARACTERISTICS

1. DC CHARACTERISTICS (V_{CC}=5V, Terminal voltage at no signal)

PIN NO.	ITEM	SYMBOL	Typ.		UNIT
			AM	FM	
1	(AM MIX IN)	V ₁	1.5	0	V
2	(AM MIX BYPASS)	V ₂	1.5	0	V
3	(AM OSC)	V ₃	2.3	2.3	V
4	(Reg)	V ₄	2.3	2.3	V
5	(AM IF OUT)	V ₅	1.0	0.9	V
6	(Meter OUT)	V ₆	1.0	0.9	V
7	(LED)	V ₇	-	-	V
8	(GND)	V ₈	0	0	V
9	(DET OUT)	V ₁₉	1.4	1.5	V
10	(V _{CC})	V ₁₀	5.0	5.0	V
11	(FM DET)	V ₁₁	5.0	5.0	V
12	(AM IF BYPASS)	V ₁₂	1.5	1.5	V
13	(AM IF IN)	V ₁₃	1.5	1.5	V
14	(FM IF BYPASS)	V ₁₄	1.5	1.5	V
15	(FM IF IN)	V ₁₅	1.5	1.5	V
16	(AM MIX OUT)	V ₁₆	5.0	5.0	V

KIA6040P

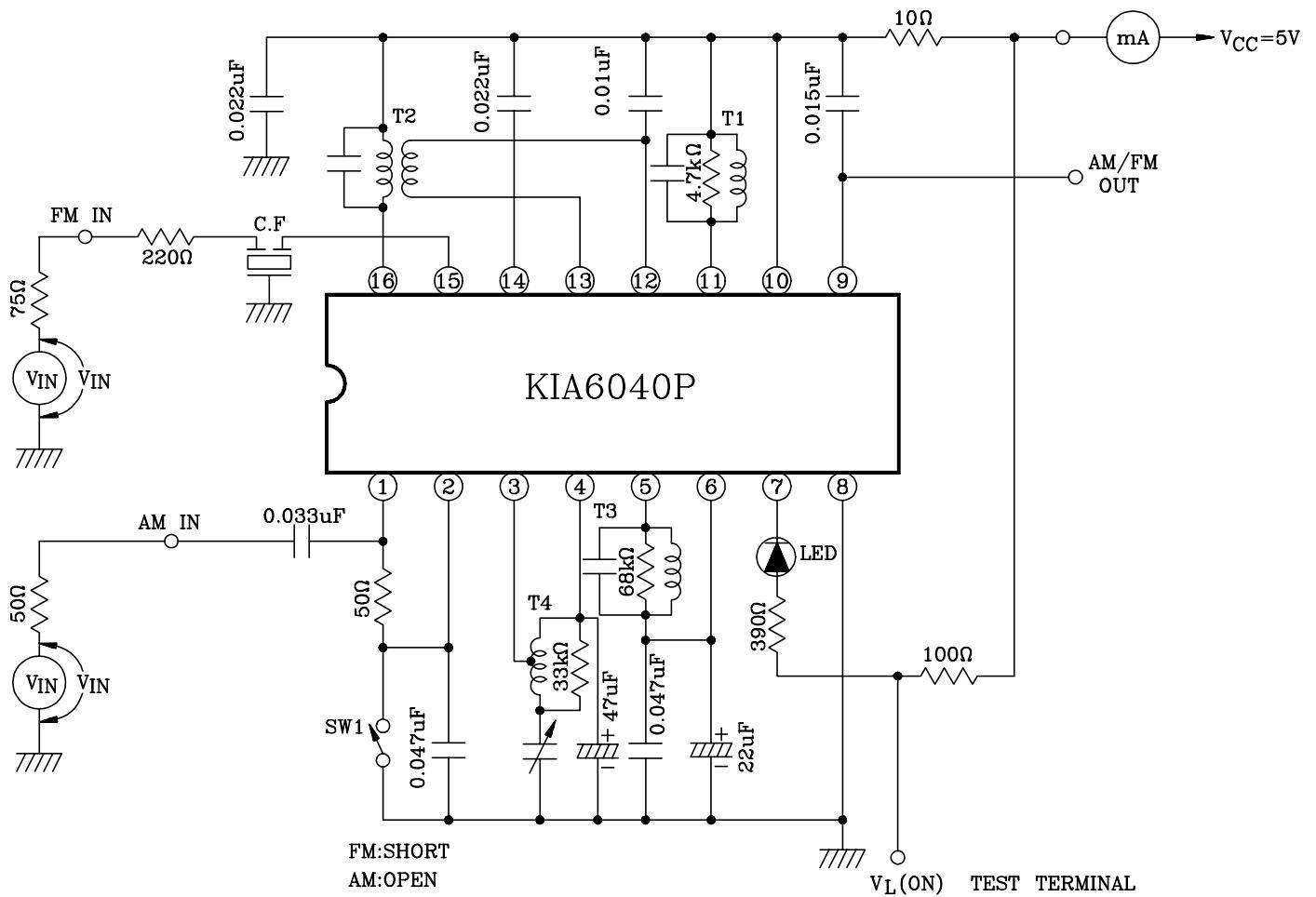
2. AC CHARACTERISTICS

(Ta=25°C, Vcc=5V, FM: f=10.7kHz, $\Delta f=\pm 22.5\text{kHz}$ dev., fm=400Hz
 AM: f=1MHz, Mod=30%, fm=400Hz)

CHARACTERISTIC	SYMBOL	TEST CIRCUIT	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Supply Current	I _{CC} (1)	1	FM V _{IN} =0	-	10	15	mA
	I _{CC} (2)		AM V _{IN} =0	-	7	10	
Input Limiting Voltage	V _{IN(lim)}	1	-3dB Limiting	-	40	46	dB μ
Recovered Output Voltage	V _{OD}	1	V _{IN} =66dB μ	57	85	114	mV _{rms}
Signal to Noise Ratio	S/N	1	V _{IN} =80dB μ	-	65	-	dB μ
FM	Total Harmonic Distortion	THD	1 V _{IN} =80dB μ	-	0.05	-	%
	AM Rejection Ratio	AMR	1 V _{IN} =80dB μ	-	38	-	dB μ
	Meter Drive Voltage	V _M	1 V _{IN} =100dB μ	1.6	1.75	1.9	V
	Lamp ON Sensitivity	V _L	1 I _L =1mA	-	46	52	dB
	Gain	G _V	1 V _{IN} =26dB μ	20	30	60	mV _{rms}
	Recovered Output Voltage	V _{OD}	1 V _{IN} =60dB μ	65	95	125	mV _{rms}
	Signal to Noise Ratio	S/N	1 V _{IN} =60dB μ	-	47	-	dB
AM	Total Harmonic Distortion	THD	1 V _{IN} =60dB μ	-	1.0	-	%
	Meter Drive Voltage	V _M	1 V _{IN} =100dB μ	1.6	1.75	1.9	V
	Lamp ON Sensitivity	V _L	1 I _L =1mA	-	32	-	dB μ
	Local OSC Stop Voltage	V _{stop}	1 R _{DUMP} = ∞	-	1.5	-	V
	Pin ⑨ Output Resistance	R ₀₉	- f=1kHz	-	3.0	-	k Ω

KIA6040P

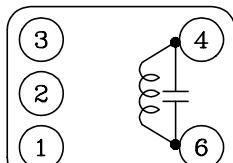
TEST CIRCUIT



KIA6040P

COIL DATA (TEST CIRCUIT)

T₁ FM DETECTOR COIL

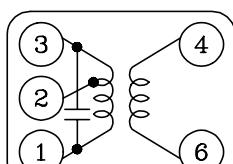


(BOTTOM VIEW)

C ₀ (pF)	f (MHz)	Q ₀	TURNS
4-6		4-6	4-6
47	10.7	150	14

① : KSC0902
 ② : 44M-933A or
 SIMILAR
 WIRE : 0.12mm ϕ UEW

T₂ AM IFT (MIX OUT)

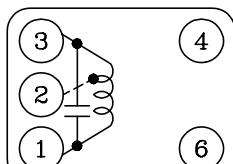


(BOTTOM VIEW)

C ₀ (pF)	f (MHz)	Q ₀	TURNS		
			4-6	1-2	2-3
1-3	455	150	90	62	8
180					

① : KS M308
 ② : 48T-423 or SIMILAR
 WIRE : 0.07mm ϕ UEW

T₃ AM IFT (DET)

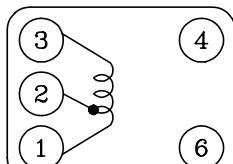


(BOTTOM VIEW)

C ₀ (pF)	f (MHz)	Q ₀	TURNS	
			1-3	1-
1-3	455	110	152	
180				

① : KSAD106
 ② : 44M-935C or
 SIMILAR
 WIRE : 0.07mm ϕ UEW

T₄ MW OSC



(BOTTOM VIEW)

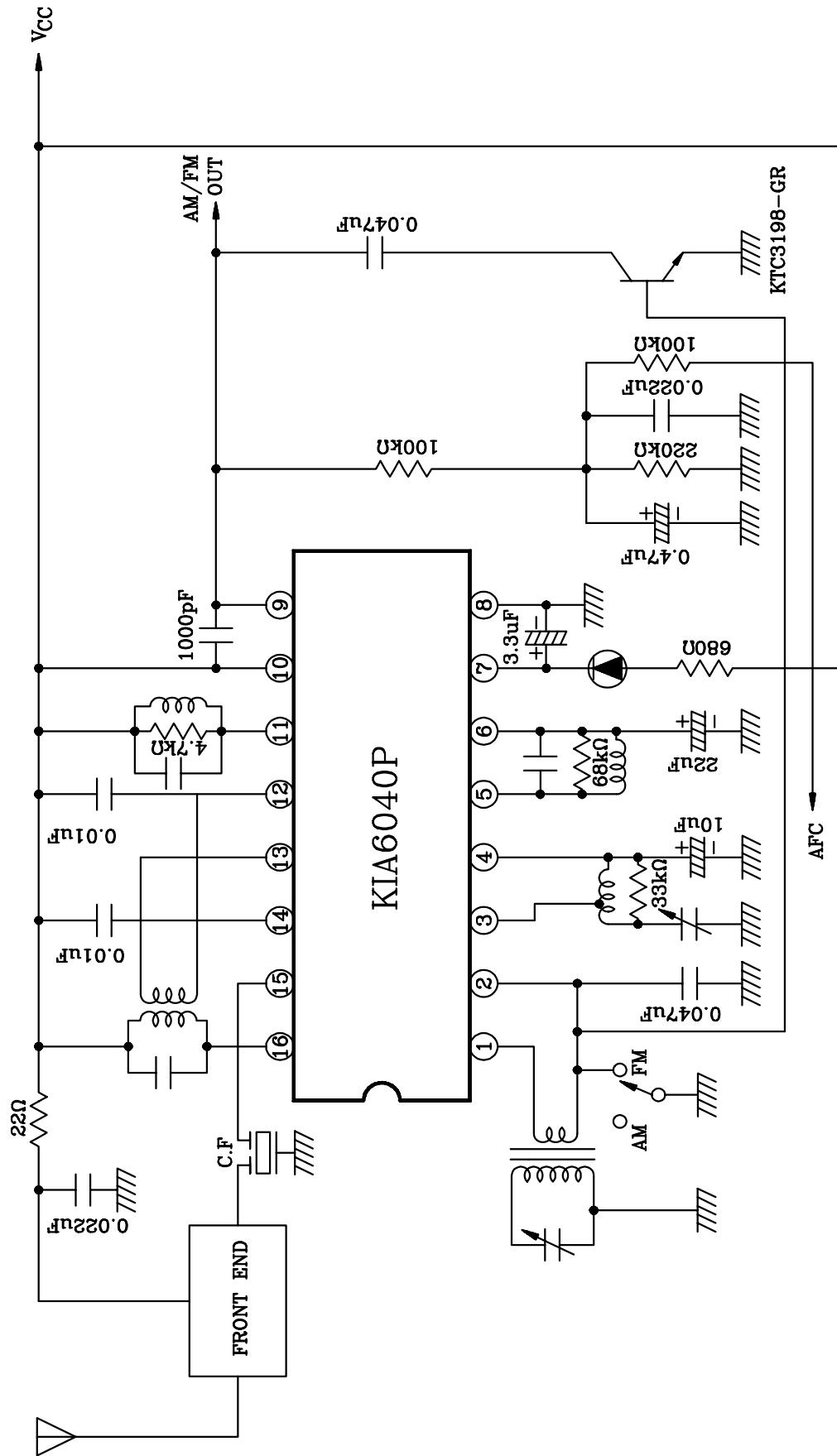
f (kHz)	L(μ H)	Q ₀	TURNS	
			1-3	1-2
796	288	120	13	75

① : KSA0408
 ② : 0137-262 or SIMILAR
 WIRE : 0.08mm ϕ UEW

NOTE : ① : KWANG SUNG ELECTRIC CO., LTD.
 (Tel : 02)716-0034
 ② : SUMIDA ELECTRIC CO., LTD.

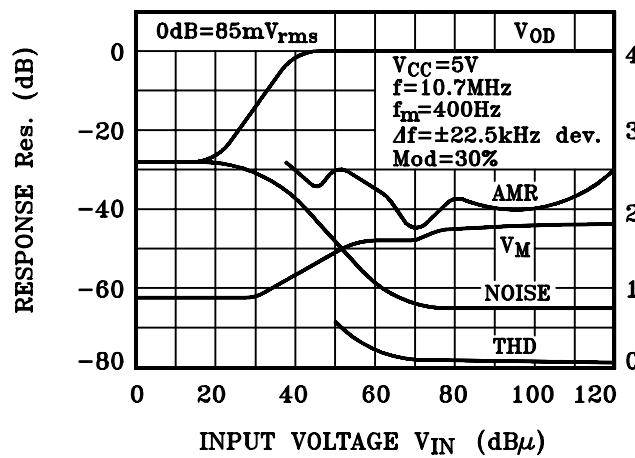
KIA6040P

APPLICATION CIRCUIT



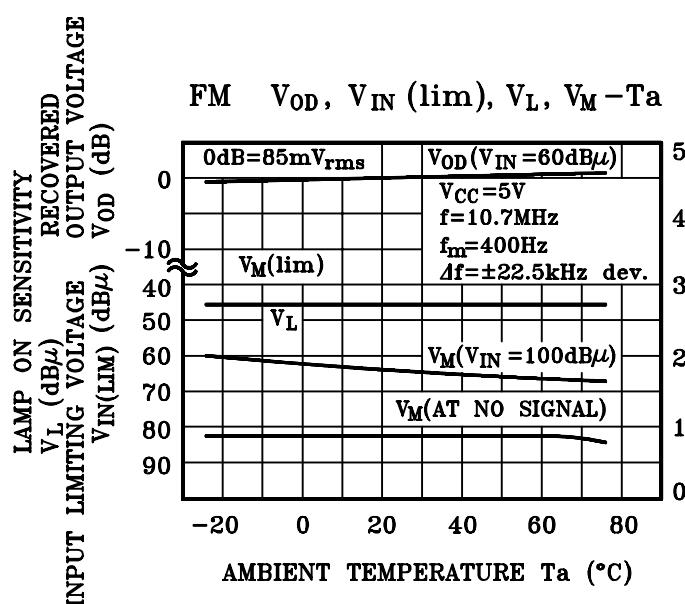
KIA6040P

FM V_{OD} , AMR, S/N, THD, $V_M - V_{IN}$



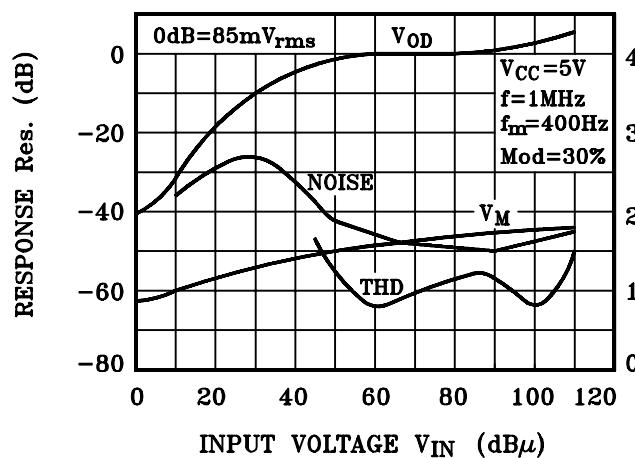
METER DRIVE VOLTAGE V_M (V)
TOTAL HARMONIC DISTORTION THD (%)

FM V_{OD} , V_{IN} (lim), V_L , $V_M - Ta$



METER DRIVE VOLTAGE V_M (V)
TOTAL HARMONIC DISTORTION THD (%)

AM V_{OD} , S/N, THD, $V_M - V_{IN}$



METER DRIVE VOLTAGE V_M (V)
TOTAL HARMONIC DISTORTION THD (%)